

CLAIMS

1. A backlight for liquid crystal display, comprising:
a plurality of fluorescent lamps;
a cover layer made of a first resin and covering an outer periphery of each of the fluorescent lamps; and
a holder member made of a second resin in which the fluorescent lamps with the outer peripheries being covered by the cover layers are enclosed so as to be juxtaposed with each other.
2. The backlight for liquid crystal display according to claim 1, wherein hardness of the first resin is lower than that of the second resin.
3. The backlight for liquid crystal display according to claim 1, wherein the first resin is a gel-form resin and the second resin is a rigid resin.
4. The backlight for liquid crystal display according to claim 1, wherein heat resistance of the first resin is greater than that of the second resin.
5. The backlight for liquid crystal display according to claim 2, wherein the first resin is a silicone resin or a fluoride resin, and
wherein the second resin is an epoxy resin, an acrylic resin, or a polycarbonate resin.
6. The backlight for liquid crystal display according to claim 1, wherein the fluorescent lamps are enclosed in the holder member so that they can be extracted from the holder member with the outer peripherals being kept covered by the cover layer.

7. The backlight for liquid crystal display according to claim 6, wherein at least one of both ends of each of the fluorescent lamps is projected out of the holder member.

8. The backlight for liquid crystal display according to claim 7, wherein a thickness of the cover layer is uniform in an elongation direction of the fluorescent lamp.

9. The backlight for liquid crystal display according to claim 8, wherein a diameter of a bulb of the fluorescent lamps is 4 mm or greater, and the length of the fluorescent lamps is 300 mm or greater.

10. The backlight for liquid crystal display according to claim 1, wherein a plurality of accommodation holes are formed in the holder member, and

wherein the fluorescent lamps with the outer peripheries covered by the cover layers are enclosed in the holder member by respectively being inserted into the accommodation holes so that the cover layers are in close contact with hole walls of the accommodation holes.

11. The backlight for liquid crystal display according to claim 10, wherein the fluorescent lamps are detachably inserted into the accommodation holes.

12. The backlight for liquid crystal display according to claim 11, wherein the accommodation holes are formed so as to penetrate the holder member from one side to the other side, and

wherein the fluorescent lamps are inserted into the accommodation holes so that both ends thereof are projected out of the holder member from the sides.

13. A lighting device, comprising:

a plurality of fluorescent lamps;

a cover layer made of a first resin and covering an outer periphery of each of the fluorescent lamps; and

a holder member made of a second resin, in which the fluorescent lamps with the outer peripheries being covered by the cover layers are enclosed so as to be juxtaposed with each other.

14. A method of manufacturing a backlight for liquid crystal display, comprising:

a first step of applying a first resin to outer peripheries of a plurality of fluorescent lamps to form cover layers which cover the outer peripheries; and

a second step of enclosing the fluorescent lamps with the outer peripheries covered by the cover layers in a holder member made of a second resin so as to be juxtaposed with each other.

15. The method for liquid crystal display according to claim 14; wherein the second step comprises steps of:

providing a first mold having a first depression and a second mold having a second depression;

arranging a plurality of inner molds having similar shapes to the fluorescent lamps in the first or second depression;

clamping the first and second molds together followed by supplying of a second resin into a cavity formed by the first and second depressions, thereby molding a holder member within which the inner molds are sealed;

demolding the holder member with the inner molds sealed therein from the first and second molds;

extracting the inner molds from the demolded holder member; and

inserting the fluorescent lamps with the outer peripheries covered by the cover layers into a plurality of accommodation holes left in the holder member by the extraction of the inner molds so that the cover layers are in close contact with hole walls of the accommodation holes.